

## Left handedness and life expectancy

### Causal inferences cannot be trusted

EDITOR,—Bryan S Turner was entirely wrong to conclude, from the evidence presented, that left handed individuals have a substantially lower life expectancy than otherwise similar right handers. Almost always in epidemiology, causal inferences cannot be trusted if they depend importantly on comparisons between the "average ages at death" of people with different characteristics. This is because the prevalences of so many human characteristics vary strongly with age. (What should instead be compared is the death rates among people who differ only in the characteristic of interest, and not in age.)

Several decades ago, left handedness used to be strongly discouraged in schools, but nowadays this is much less the case. At present, therefore, the proportion of adults who remain left handed is larger among the young than among the old. Hence, in 1994 the proportion of left handers will likewise be larger among those who die at 40 than among those who die at 80. This in turn implies that the "average age at death" for those who die in 1994 will be lower for left handers than for right handers. But, as a left handed statistician, I do not find this sinister.

RICHARD PETO

Nuffield Department of Clinical Medicine,  
University of Oxford,  
Radcliffe Infirmary,  
Oxford OX2 6BR

1 Turner BS. Left handedness. *BMJ* 1993;307:1577-8. (18-25 December.)

### Studies mislead on age at death

EDITOR,—In his editorial on left handedness Bryan S Turner presents a narrow view of the evidence regarding handedness and life expectancy.<sup>1</sup> He refers to two studies of life expectancy and handedness by Halpern and Coren, both of which are retrospective reports.<sup>2,3</sup> In the first study the age at death and handedness of professional baseball players was noted from the *Baseball Encyclopedia*,<sup>2</sup> and in the second study the age at death and handedness of people who had recently died was noted from responses to a questionnaire returned by next of kin.<sup>3</sup>

A major problem in questionnaire studies of handedness is response bias as there is often a differential response rate between left handers and right handers. Add to that the fact that left handedness is less common among elderly people and the potential for serious bias in the results becomes clear. The study based on information from next of kin is clearly vulnerable to the problem, particularly as the overall response rate was low (49%).<sup>3</sup>

The reasons why left handedness is less common among elderly people is controversial, and Halpern and Coren's argument that it is because of differences in life span is by no means universally accepted. Given this uncertainty, retrospective studies such as Halpern and Coren's are not useful as a difference in the age at death may simply reflect longstanding differences in the proportions of left handers at different ages. Incidentally, the difference of nine years in the mean age at death

Priority will be given to letters that are less than 400 words long and are typed with double spacing. All authors should sign the letter. Please enclose a stamped addressed envelope for acknowledgment.

cited by Turner was from the questionnaire study<sup>1</sup> and not, as implied, from the baseball study: in the baseball study the mean difference in age at death was less than a year (right handers 64.64 (SD 15.5); left handers 63.96 (15.4)) and was not significant.<sup>2</sup>

Not only do these two studies not provide strong evidence for the suggestion that left handers have a reduced life span but there is good evidence against this position. Two large prospective longitudinal studies from the United States have failed to find any differences between left handers and right handers in either mortality or age at death.<sup>4,5</sup> Thus Halpern and Coren's conclusion, repeated by Turner—that left handers have a lower life expectancy than right handers—is not well supported by the facts. Unfortunately, repeating this conclusion without discussing the contrary evidence may not only give rise to unnecessary distress among left handers and their relatives but encourage insurance companies and employers to discriminate unfairly against a sizeable proportion of the population.

ADRIAN BURGESS

Department of Psychiatry,  
Charing Cross and Westminster Medical School,  
London W6 8RF

1 Turner BS. Left handedness. *BMJ* 1993;307:1577-8. (18-25 December.)

2 Halpern DF, Coren S. Do right-handers live longer? *Nature* 1988;333:213.

3 Halpern DF, Coren S. Handedness and life span. *N Engl J Med* 1991;324:998.

4 Marks JS, Williamson DF. Left-handedness and life expectancy. *N Engl J Med* 1991;325:1042.

5 Wolf PA, D'Agostino RB, Cobb J. Left-handedness and life expectancy. *N Engl J Med* 1991;325:1042.

### No evidence to support link

EDITOR,—Bryan S Turner discusses Coren's claim that left handers die earlier than right handers.<sup>1</sup> Though it is true that the incidence of left handedness decreases as the age of the population sampled increases, the idea that this is due to reduced longevity of left handers has received little empirical support. Coren argued initially from demographic data on baseball players that left handers die younger, but subsequent analysis of the same data failed to confirm his analysis. In addition, two later studies failed to replicate his findings.

In a second study Coren and Halpern sent questionnaires to the next of kin of people who had recently died in California. They reported that the mean age at death of left handers was 66 compared with 75 for right handers.<sup>2</sup> Unfortunately, Halpern and Coren do not present their data in a way that allows their finding to be properly evaluated.

There is a further problem in interpreting Halpern and Coren's data—namely, that the mean ages of left handers and right handers in the general population of Britain differs by about nine years.<sup>3</sup> This is probably due to an increase in tolerance

of left handedness, and left handed writing in particular, in more recent years. In all probability it is not that left handers die younger but that the oldest left handers were forced to write with their right hand, and therefore have been classified as right handed, that leads to the apparent reduction in longevity in left handers.<sup>4</sup>

Despite these comments, there are reasons why it might be predicted that left handers die earlier than right handers. Associations have been reported between left handedness and cancer, alcohol misuse, smoking, immune disorders, and low birth weight (related to socioeconomic factors that are in turn associated with reduced life expectancy).

A further cause of a reduced life span in left handers suggested by Coren could be an increased rate of accidents in an environment designed largely by and for the right handed majority of the population.<sup>5</sup> In a recent study of the relative frequency of injury to preferred and non-preferred hands colleagues and I found that the proportion of left handers presenting to a busy accident and emergency department was slightly higher than the proportion in the general British population.<sup>6</sup> Data from Canada, however, do not suggest any increase in the rate of hand injury—or road traffic accidents—among left handers.

ALAN A BEATON

Department of Psychology,  
University College of Swansea,  
Swansea SA2 8PP

1 Turner B. Left handedness. *BMJ* 1993;307:1577-8.

2 Halpern D, Coren S. Handedness and life span. *N Engl J Med* 1991;324:998.

3 Davis A, Annett M. Handedness as a function of twinning, age and sex. *Cortex* (in press).

4 Annett M. The fallacy of the argument for reduced longevity in left-handers. *Perceptual and Motor Skills* 1993;76:295-8.

5 Coren S, Halpern D. Left-handedness: a marker for decreased survival fitness. *Psychol Bull* 1991;109:90-106.

6 Beaton AA, Williams L, Moseley LG. Handedness and hand injuries. *J Hand Surg* (in press).

## Mental health law

### College committed to improving training

EDITOR,—We wish to correct inaccuracies in Nigel Eastman's article on mental health law.<sup>1</sup> In its examinations the Royal College of Psychiatrists attaches great importance to the principles of mental health legislation. It is not possible, in an international college, to examine the minutiae of individual mental health acts in the written papers. There is no dispute between the college and Irish candidates; candidates from Scotland and Northern Ireland are also familiar with different legislation from that in England and Wales. In the clinical and oral examinations, when the candidate and examiner are familiar with the same law the candidate's knowledge is examined in detail, particularly as many patients who agree to participate in the examination have at some time been liable to detention under such laws. The royal college's examinations do test another vital aspect—namely, the ability of candidates to assess and diagnose psychiatric disorders.

As Eastman implies, those authorities that grant approval of doctors as having specialist knowledge of psychiatry—such as regional health authorities under section 12 (2) of the England and Wales Mental Health Act must consider how they assess